UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,182	08/31/2001	Anthony J. Celeste	5202DDZ	4169

7590 10/30/2002

American Home Products Corporation
(Attn: Kay E. Brady)
Patent & Trademark Office
Five Giralda Farms
Madison, NJ 07940

EXAMINER
KEMMERER, ELIZABETH

ART UNIT	PAPER NUMBER
1646	4

DATE MAILED: 10/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/945,182	CELESTE ET AL.	
	Examiner	Art Unit	
	Elizabeth C. Kemmerer, Ph.D.	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17,18,20 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17,18,20 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of Application, Amendments, And/Or Claims

The preliminary amendment filed 31 August 2001 (Paper No. 3) has been received and entered in full. The sequence listing has also been received, found to be free of errors, and entered into the file.

Claims 1-16, 19, 21-26 and 28 have been canceled. Claims 17, 18, 20 and 27 are under examination.

Double Patenting

The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 17, 18, 20 and 27 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6-10 and 17-20 of U.S. Patent 6,027,919. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons. The instant claims are

generically drawn to purified BMP-12 related polypeptides and pharmaceutical compositions comprising same. Using the specification as a dictionary, the specification defines BMP-12 related polypepitdes at p. 2 as a subset of the BMP/TGF-β/Vg-1 family of polypeptides, including BMP-12 (disclosed in SEQ ID NO: 2) and the polypeptide of SEQ ID NO: 26. The patented claims are directed to polypeptides of SEQ ID NO: 2 and SEQ ID NO: 26. Therefore, the patented polypeptides are representative species of the currently claimed genus of BMP-12 related polypeptides. It would have been obvious to one of ordinary skill in the art to use the specific BMP-12 related poypptides of the patented claims and obtain other similar polypeptides with a reasonable expectation of success. The motivation to do so is in the knowledge of one skilled in the art that polypeptides that have structures intermediate to those of SEQ ID NO: 2 and SEQ ID NO: 26 would be likely to have similar activities. The instant claims directed to pharaceutical compositions would have been obvious over the patented claims, because the inherent function of the patented polypptides (e.g., tendon-inducing activity) is therapeutically useful. Furthermore, pharmaceutical compositions read on the recited polypeptides in an inert carrier (e.g., water, saline). It would have been obvious to place the polypeptides of the patented claims in a solution such as water or saline in order to do experiemtns with the polypeptides (such as test activity on tendon tissue).

35 U.S.C. § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17, 18, 20 and 27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the recited polypeptides and compositions wherein the recited BMP-12 related polyppeitdes comprise at least amino acids 3 to 104 of SEQ ID NO: 2 (BMP-12) or SEQ ID NO: 4 (MP52) or amino acids 19 to 120 of SEQ ID NO: 26 (BMP-13), does not reasonably provide enablement for the recited genus of BMP-12 related polyppetides. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are directed to BMP-12 related polypeptides and compositions comprising same. The specification discloses BMP-12, BMP-13, and MP52. The specification's discussions of "BMP-12 related proteins" make it clear that variants of BMP-12, BMP-13, and MP52 are encompassed by the term (see, e.g., top of p. 2). The BMP-12, BMP-13, and MP52 proteins have the distinguishing activity of preferentially inducing tendon and ligament tissue rather than the bone and cartilage tissue induced by many other BMP proteins. The scope of patent protection sought by Applicant as defined by the claims fails to bear a reasonable correlation with the scope of disclosure set forth in the specification for the following reasons. The percent sequence identity shared by BMP-12, BMP-13, and MP52 is comparable to that shared by other members of the BMP subfamily, and yet those other members do not have the distinguishing activity of tendon-induction. Also, the specification fails to set forth what sequence

requirements are necessary for the tendon-inducing activity. While it is known that many amino acid substitutions are generally possible in any given protein the positions within the protein's sequence where such amino acid substitutions can be made with a reasonable expectation of success are limited. Certain positions in the sequence are critical to the protein's structure/function relationship, e.g. such as various sites or regions directly involved in binding, catalysis and in providing the correct three-dimensional spatial orientation of binding and catalytic sites. These regions can tolerate only relatively conservative substitutions or no substitutions (see Ngo et al., and Wells). Due to the large quantity of experimentation necessary to generate variants of BMP-12, BMP-13, and MP52 and assay for tendon-induction rather than bone or cartilage induction, the lack of direction/guidance presented in the specification regarding said variants, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which establishes the unpredictability of the effects of mutation on protein structure and function, and the breadth of the claims which fail to recite structural or functional limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope. This determination is consistent with the findings in In re Wands, 8 USPQ2d 1400 (CAFC 1988).

Claim Objections

Claims 17, 18, 20 and 27 are objected to because of the following informalities: the abbreviations appearing in the claims (e.g., "BMP-12") should be spelled out in the

independent claims and at the first occurrence in the dependent claims. Appropriate correction is required.

Formal Matters

The instant application is not fully in compliance with the sequence rules, 37 CFR 1.82101.825. Specifically, sequences appear in the figure and at least at pp. 8 (lines 19 and 26), 9 (lines 3 and 32), 26 (lines 31 and 32), and 36 (lines 20 and 21) without the required reference to the relevant sequence identifier (i.e., SEQ ID NO:). Applicant is advised that a sequence disclosed in a figure can refer to a sequence identifier either in the figure itself or in the associated Brief Description of the Drawings. Correction is required.

Applicant is requested to update the status of U.S. Patent applications disclosed in the specification in the file history at p. 1 and at p. 17.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth C. Kemmerer, Ph.D. whose telephone number is (703) 308-2673. The examiner can normally be reached on Mon. - Thurs., 6:30 to 4:00, and alternate Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne L. Eyler, Ph.D. can be reached on (703) 308-6564. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Elyabeth C. Kemmerer

ECK
October 29, 2002

ELIZABETH KEMMERER
PRIMARY EXAMINER